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program read_rcaf1011
parameter (IM=44,JM=243,KM=10,MAXCHEM=6,NOSS=2,NOPOC=3,NACTCH=1)
parameter (NOPHYTC=2,NODOC=2)

parameter (NGDUMP=(NACTCH*3)+NOSS+NOPOC+NOPHYTC+NODOC+1)
parameter (NUMSYS=16)
parameter (ICNTRAN=1948)

integer nx, ny, nz, nosys, ngdmp, fsm(IM,JM)
integer*2 sysgdp(NUMSYS)
integer rcaf10, rcaf11, rcaout
character gdnames(NUMSYS)*8
real SALINITY(IM,JM,KM),
+ TCHEM1(IM,JM,KM), DCHEM1(IM,JM,KM), PCHEM1(IM,JM,KM),
+ TCHEM2(IM,JM,KM), DCHEM2(IM,JM,KM), PCHEM2(IM,JM,KM),
+ TCHEM3(IM,JM,KM), DCHEM3(IM,JM,KM), PCHEM3(IM,JM,KM),
+ TCHEM4(IM,JM,KM), DCHEM4(IM,JM,KM), PCHEM4(IM,JM,KM),
+ TCHEM5(IM,JM,KM), DCHEM5(IM,JM,KM), PCHEM5(IM,JM,KM),
+ TCHEM6(IM,JM,KM), DCHEM6(IM,JM,KM), PCHEM6(IM,JM,KM),
+ SS1(IM,JM,KM), SS2(IM,JM,KM), PHYTC1(IM,JM,KM),
+ PHYTC2(IM,JM,KM), LPOC(IM,JM,KM), RPOC(IM,JM,KM),
+ IPOC(IM,JM,KM), RDOC(IM,JM,KM), LDOC(IM,JM,KM)

INTEGER indx(ICNTRAN), jndx(ICNTRAN)
INTEGER IWTRCNT, IZ
REAL STOT(IM,JM,KM),DPOCTOT(IM,JM,KM),DOCTOT(IM,JM,KM),
+ APOCTOT(IM,JM,KM)

C
C READ IN MODEL GRID
C
OPEN(30,FILE='ww_cells.txt',FORM='FORMATTED',STATUS='OLD')
READ(30,'(I12)') IWTRCNT
print *, 'iwtrcnt', iwtrcnt
DO 25 I=1,IWTRCNT
  READ(30,'(2I12)') indx(I),jndx(I)
25 CONTINUE
CLOSE(30)

OPEN(1001,FILE='REAF1011_TCHEM.TXT',FORM='FORMATTED')
OPEN(1002,FILE='REAF1011_DCHEM.TXT',FORM='FORMATTED')
OPEN(1003,FILE='REAF1011_PCHEM.TXT',FORM='FORMATTED')
OPEN(1004,FILE='REAF1011_TSS.TXT',FORM='FORMATTED')
OPEN(1005,FILE='REAF1011_DETPOC.TXT',FORM='FORMATTED')
OPEN(1006,FILE='REAF1011_DOC.TXT',FORM='FORMATTED')
OPEN(1007,FILE='REAF1011_ALGPOC.TXT',FORM='FORMATTED')

rcaf10=1
open(rcaf10,file='RCAF10',form='unformatted')
rcaf11=2
open(rcaf11,file='RCAF11',form='unformatted')

read(rcaf10)nx, ny, nz, nosys, ngdmp
write(*,*)nx, ny, nz, nosys, ngdmp
if(IM.NE.nx) then
  write(*,*)"IM .NE. nx"

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stop
endif
if(JM.NE.ny) then
  write(*,*)"JM .NE. ny"
  stop
endif
if(km.NE.nz) then
  write(*,*)"KM .NE. nz"
  stop
endif
if(NUMSYS.NE.nosys) then
  write(*,*)"NUMSYS .NE. nosys"
  stop
endif

read(rcaf10)
read(rcaf10)
read(rcaf10)fsm

do while (1.EQ.1)
  read(rcaf10,end=999)time
  write(*,*) time
  read(rcaf11) SALINITY
  read(rcaf11) TCHEM1
  read(rcaf11) DCHEM1
  read(rcaf11) PCHEM1
  if(NACTCH.EQ.1) GOTO 361
  read(rcaf11) TCHEM2
  read(rcaf11) DCHEM2
  read(rcaf11) PCHEM2
  if(NACTCH.EQ.2) GOTO 361
  read(rcaf11) TCHEM3
  read(rcaf11) DCHEM3
  read(rcaf11) PCHEM3
  if(NACTCH.EQ.3) GOTO 361
  read(rcaf11) TCHEM4
  read(rcaf11) DCHEM4
  read(rcaf11) PCHEM4
  if(NACTCH.EQ.4) GOTO 361
  read(rcaf11) TCHEM5
  read(rcaf11) DCHEM5
  read(rcaf11) PCHEM5
  if(NACTCH.EQ.5) GOTO 361
  read(rcaf11) TCHEM6
  read(rcaf11) DCHEM6
  read(rcaf11) PCHEM6

361   read(rcaf11) SS1
      read(rcaf11) SS2
      read(rcaf11) PHYTC1
      read(rcaf11) PHYTC2
      read(rcaf11) LPOC
      read(rcaf11) RPOC
      read(rcaf11) IPOC
      read(rcaf11) RDOC
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read(rcaf11) LDOC

STOT(:,:,:)=SS1(:,:,:)+SS2(:,:,:)
DPOCTOT(:,:,:)=LPOC(:,:,:)+RPOC(:,:,:)+IPOC(:,:,:)
APOCTOT(:,:,:)=PHYTC1(:,:,:)+PHYTC2(:,:,:)
DOCTOT(:,:,:)=RDOC(:,:,:)+LDOC(:,:,:)

C OUTPUT RESULTS
WRITE(1001,'("DAY=",F10.4)') TIME
DO I=1,IWTRCNT
    WRITE(1001,'(2i6,10e15.5)') indx(I),jndx(I)
+   ,(TCHEM1(indx(I),jndx(I),IZ),IZ=1,KM)
ENDDO
WRITE(1002,'("DAY=",F10.4)') TIME
DO I=1,IWTRCNT
    WRITE(1002,'(2i6,10e15.5)') indx(I),jndx(I)
+   ,(DCHEM1(indx(I),jndx(I),IZ),IZ=1,KM)
ENDDO
WRITE(1003,'("DAY=",F10.4)') TIME
DO I=1,IWTRCNT
    WRITE(1003,'(2i6,10e15.5)') indx(I),jndx(I)
+   ,(PCHEM1(indx(I),jndx(I),IZ),IZ=1,KM)
ENDDO
WRITE(1004,'("DAY=",F10.4)') TIME
DO I=1,IWTRCNT
    WRITE(1004,'(2i6,10e15.5)') indx(I),jndx(I)
+   ,(STOT(indx(I),jndx(I),IZ),IZ=1,KM)
ENDDO
WRITE(1005,'("DAY=",F10.4)') TIME
DO I=1,IWTRCNT
    WRITE(1005,'(2i6,10e15.5)') indx(I),jndx(I)
+   ,(DPOCTOT(indx(I),jndx(I),IZ),IZ=1,KM)
ENDDO
WRITE(1006,'("DAY=",F10.4)') TIME
DO I=1,IWTRCNT
    WRITE(1006,'(2i6,10e15.5)') indx(I),jndx(I)
+   ,(DOCTOT(indx(I),jndx(I),IZ),IZ=1,KM)
ENDDO
WRITE(1007,'("DAY=",F10.4)') TIME
DO I=1,IWTRCNT
    WRITE(1007,'(2i6,10e15.5)') indx(I),jndx(I)
+   ,(APOCTOT(indx(I),jndx(I),IZ),IZ=1,KM)
ENDDO

enddo

999 continue
CLOSE(1001)
CLOSE(1002)
CLOSE(1003)
CLOSE(1004)
CLOSE(1005)
CLOSE(1006)
CLOSE(1007)

end

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